Research Funding for Early Career Investigators

Early Career Programs in the Federal Agencies NSF, NIH, DoE, DoD, and others.
Agenda

- Funding Opportunities for Early Career Investigators
  - State
  - Professional Societies
  - Federal – NSF, NIH, DoE, DoD

- NSF Career
  - Proposal Structure and Components
  - Writing the Education Component
    - Leveraging Existing Activities at ODU
  - References, Letters, and Other Documents
Funding Opportunities for Junior Faculty

- There are specific programs to fund junior investigators
  - YIP (DoD), YFA (DoD), Early Career Research Program (DoE), CAREER (NSF), K-series (NIH)

- TIMING important - Take advantage of it!
  - When the degree was conferred
  - Date of appointment in tenure-track position

- Regular research project grants involve/require collaboration and the investment is in the project. Programs for young investigators provide stable support to enable awardees to start a research program and develop a career, the investment is in the investigator.
  - It is about you and your research program
  - For NSF CAREER - 5 years is a long time to plan, focus more on outcomes, directions, and student preparation than research specifics
How to prepare for these opportunities for junior faculty?
**NSF vs. Mission Agencies**

- Interest in most S&E topics as well as Education – a proposal will “fit somewhere”
- Knowledge inspired
- Funds for basic research
- Impact on S&E knowledge addressing national / international priorities is useful
- Additional requirements
  - Broader impacts
  - Education
  - Broadening participation
  - Data management
  - Post-doc nurturing
  - Underrepresented, wider-scale, international impact
- Program Officer coordinates an external peer review panel

- Interest restricted to S&E topics for mission need – a proposal **MUST** interest a program officer
- Agency mission inspired
- Funds for basic research, but funds for applied research may be also available (milestones and deadlines)
- Impact on S&E knowledge AND addressing agency mission priorities
- Generally there are no additional requirements other than to perform the promised research
- Program officer will initially select on basis of content and will decide awardees usually with some reviewer input
A compact, low power pulsed optical communication system for spacecraft

- **PI:** Dr. John W. Conklin, University of Florida
- **Paul Serra, PhD candidate, University of Florida**
- **Two additional doctoral students**

Research Objectives

- Develop a 5 W, 2 kg, up to 100 Mbps optical communication system from TRL 1 to TRL 3.
- FPGA-based Differential Pulse Position Modulator
  - Sub-nanosecond slot width
  - Long symbol length → low average power, high peak power
  - **Low power Master Oscillator Power Fiber Amplifier laser system**
    - ~ 200 psec, 1550 nm
    - > kW peak power
  - **Compact structure, thermal management**

Approach

- System level design:
  - Required timing accuracy, laser power, slot width
- Chip Scale Atomic Clock driven Delay Locked Loop to produce precise delays
- Optimization of peak optical power vs. average pump power for MOPFA system
- Laboratory testing of prototype FPGA modulator, MOPFA laser system, and compact instrument structure
  - Delay time accuracy, average versus peak power, and beam quality

Potential Impact

- Versatile, low power optical communications
  - Deep space small satellites
  - Missions with highly constrained SWaP
  - **Low mass, volume, power instrument enables demonstration on nanosatellite**
    - 3-6U CubeSat within 5-8 years
  - **Heavy student involvement; prepares next generation of space technologists**
White-paper (2-page)

- COVER PAGE
  Project Title
  Principal Investigator Name, Job Title
  Institution
  PI Phone Number, PI Email Address
  Year Doctorate Awarded: XXXX
  Number of Times Previously Applied†:
  Funding Opportunity Announcement Number: DE-FOA-0001170

- PROJECT DESCRIPTION (2-page)
  Clear and concise description of the objectives and technical approach of the proposed research. In two pages. Figures and references, if included, must fit within the two-page limit.

- LIST OF COLLABORATORS, CO-EDITORS, ADVISORS AND ADVISEES (1-page list)
  Collaborators and Co-editors: List, in alphabetical order, all persons, including their current organizational affiliations, who are, or who have been, collaborators or co-authors with the Principal Investigator on a research project, book or book article, report, abstract, or paper during the 48 months preceding the closing date of this announcement. For publications or collaborations with more than 10 authors or participants, only list those individuals in the core group with whom the Principal Investigator interacted on a regular basis while the research was being done. Also, list any individuals who are currently or have been in the past co-editors with the Principal Investigator on a special issue of a journal, compendium, or conference proceedings during the 24 months preceding the closing date of this announcement. If there are no collaborators or co-editors to report, state “None.” Graduate and Postdoctoral Advisors and Advisees: List the names of the Principal Investigator's own graduate advisor(s) and principal postdoctoral sponsor(s) and their current organizational affiliations. Also list the names of the Principal Investigator's graduate students and postdoctoral associates during the past five years and their current organizational affiliations.
I. Introduction and Overview (suggestion: 1-2 pages)
   I. Goals and Significance of Career Plan (both research and education)
   II. Overview of approach and why it’s innovative

II. Research Plan (9-10 pages)
   I. Background & Significance (3 pages or less)
   II. Prior work and Preliminary Results
   III. Experimental/Methodological Plan
   IV. Schedule with milestones

III. Education Plan (3-4 pages)
   I. Education objectives and Expected outcomes
   II. Background (cite educational literature)
   III. Prior work and preliminary results
   IV. Education and Outreach Activities
   V. Assessment
   VI. How research and education plans are integrated
   VII. Schedule and milestones

IV. Broader Impacts Plan (required)

V. Results of Prior NSF Support (required if applicable)
<table>
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<tr>
<th>Program</th>
<th>Deadline</th>
<th>Program Synopsis</th>
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<tbody>
<tr>
<td>Jeffress Trust Awards Program in Interdisciplinary Research</td>
<td>Thursday, January 15, 2015 at 12:00 Noon, Eastern Time</td>
<td>Applicants must be within the first seven years of their initial faculty appointment. &lt;br&gt; <strong>Limited submission</strong> - A maximum of four applications may be nominated for submission per institution, inclusive of all schools and colleges therein – <strong>Internal competition in October</strong>. &lt;br&gt; Awards of $100,000 for one year. &lt;br&gt; ~ 12 grants are awarded each year &lt;br&gt; <a href="http://www.hria.org/tmfservices/tmfgrants/jeffress.html">http://www.hria.org/tmfservices/tmfgrants/jeffress.html</a></td>
</tr>
<tr>
<td>Virginia Space Grant Consortium — New Investigator Program</td>
<td>March 2, 2015</td>
<td>Applicants must be tenure-track faculty who are within the first five years of their academic careers and they must be U.S. citizens. &lt;br&gt; For research that is directly aligned with NASA's mission. &lt;br&gt; Maximum individual award of $10,000 and institutions are required to provide 1:1 non-federal cost match. Period of performance is one year. &lt;br&gt; ~ 5 grants are awarded each year &lt;br&gt; Cannot be used for the purchase of equipment. &lt;br&gt; <a href="http://vsgc.odu.edu/NIPrgrm/">http://vsgc.odu.edu/NIPrgrm/</a></td>
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<tr>
<td>Program</td>
<td>Deadline</td>
<td>Program Synopsis</td>
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| Petroleum Research Fund Doctoral New Investigator Grants (DNI), American Chemical Society | Mid March and Mid October 5:00 p.m. ET March 17, 2015 October 17, 2015 | Applicants must be within the first three years of their first academic appointment at the level of Assistant Professor or equivalent.  
Awards of $110,000 over two years.  
~ 90 grants are awarded each year  
| Research Initiation Grant                  | End of August                   | Applicants must hold a tenure-track appointment at the rank of Assistant Professor at a US university.  
Must not be more than 5 years beyond receipt of their doctoral degree at the time the award is made.  
The $20,000 grant is to assist with the purchase of equipment or instrumentation, fabrication of a unique apparatus, travel, or other items that serve the proposer’s research objectives.  
[https://community.asme.org/applied_mechanics_division/w/wiki/3471_honors-awards.aspx](https://community.asme.org/applied_mechanics_division/w/wiki/3471_honors-awards.aspx) |

✔ Check in your professional societies — get involved
Another Opportunity for Junior Faculty

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<tr>
<th>Program</th>
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<th>Program Synopsis</th>
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</thead>
<tbody>
<tr>
<td>Cottrell Scholar Awards</td>
<td>Application portal open mid May</td>
<td>Faculty in the physical sciences and related fields: astronomy, biochemistry, biophysics, chemistry, or physics, but not in a school of medicine or engineering.</td>
</tr>
<tr>
<td></td>
<td>Proposal deadline mid August</td>
<td>For the 2014 proposal cycle, eligibility is limited to faculty members who started their first tenure-track position anytime in calendar year 2011.</td>
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<tr>
<td></td>
<td>Awards announced late February</td>
<td>Awards are for three year projects in the amount of $75,000 for the entire project. An amount of $5,000 is set aside to cover travel expenses related to attendance at two Annual Cottrell Scholar Conferences.</td>
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<td></td>
<td><a href="http://www.rescorp.org/grants-and-awards/cottrell-scholar-awards">http://www.rescorp.org/grants-and-awards/cottrell-scholar-awards</a></td>
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## Opportunities for Junior Faculty in the DoD

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<tr>
<th>Program</th>
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<tbody>
<tr>
<td>Young Investigator Program, Office of Naval Research</td>
<td>no later than 4:00 PM EST on Wednesday, March 4, 2015</td>
<td>The principal investigator of a proposal must be a U.S. citizen, national or permanent resident (on the date proposals are due), holding a first- or second full-time tenure-track or tenure-track-equivalent faculty position at that university. For FY2015, applicants should have begun their first appointment on or after 01 November 2009. Proposals may request up to $170,000 per year for three years.</td>
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<td>Address research areas described by ONR ST</td>
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<tr>
<td>Young Faculty Award, DARPA</td>
<td>Solicitation posted in November 07 Jan 2015 (anticipated)</td>
<td>Each grant will encompass funding for a 24-month base period consisting of two 12-month phases (a maximum of $250,000 per 12-month phase) and a 12-month option period (a maximum of $500,000). Applicants are limited to a maximum of three applications to the DARPA YFA program during their term of eligibility. Participation is limited to untenured Assistant or Associate Professors within 5 years of appointment to a tenure-track position at a U.S. institution of higher education or equivalent at a non-profit science and technology research institution.</td>
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## Opportunities for Junior Faculty in the DoD

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<tr>
<th>Program</th>
<th>Deadline</th>
<th>Program Synopsis</th>
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</thead>
<tbody>
<tr>
<td>Broad Agency Announcement - Young Investigator Program, Army Research Office</td>
<td>Open</td>
<td>For U.S. citizens, Nationals, and resident aliens holding tenure-track positions at U.S. universities and colleges, who have held their graduate degrees (Ph.D. or equivalent) for <strong>fewer than five years</strong> at the time of application.</td>
</tr>
<tr>
<td></td>
<td>Research project must align with general BAA topics</td>
<td>YIP awards are up to $50,000 per year for three years.</td>
</tr>
<tr>
<td>Young Investigator Program, Air Force Office of Scientific Research</td>
<td>BAA posted in mid June</td>
<td>Applicants should have received Ph.D. or equivalent degrees in the last five years.</td>
</tr>
<tr>
<td></td>
<td>Sept 15 closing date for applications</td>
<td>Each award is funded at the $120,000 level for three years. Exceptional proposals will be considered individually for higher funding levels and longer duration.</td>
</tr>
<tr>
<td>Defense Threat Reduction Agency (DTRA)</td>
<td>13 Jan 2014 Phase I White Paper Submission Deadline</td>
<td>Faculty who received a Ph.D. or equivalent degree within 5 years of date of the pre-application white paper submission. No requirement for US citizenship or permanent residency.</td>
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<td>Proposals that focus on exploratory aspects of a unique problem, a high risk approach, or innovative research in subjects with potential for high impact to CWMD science in specific topics.</td>
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<td>Awards are $100,000 per year for up to five years ~ 15 awards are made each year.</td>
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Opportunities for Junior Faculty with the CDMRP - DoD

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<tr>
<th>Program</th>
<th>Deadline</th>
<th>Program Synopsis</th>
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</thead>
<tbody>
<tr>
<td>CDMRP New Investigator Awards</td>
<td>LOI end of April</td>
<td>Principal Investigator: Independent investigator at the level of Assistant Professor or equivalent at the time of the award, within 5 years of first faculty appointment.</td>
</tr>
<tr>
<td></td>
<td>Proposal mid May</td>
<td>Research with emphasis in discovery must be in one or more of the CDMRP Topic Areas.</td>
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<tr>
<td></td>
<td>Peer review July</td>
<td>Preliminary data not required, clinical trials will not be supported.</td>
</tr>
<tr>
<td></td>
<td>Programmatic review October</td>
<td>Maximum funding is $240,000 for direct costs (plus indirect costs), maximum period of performance is 2 years.</td>
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<tr>
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<td></td>
<td>Historical Record for CDA by the different Research Medical Programs:</td>
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<tr>
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<td></td>
<td>• Peer Reviewed Cancer (PRCRP) 2013, 2012</td>
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<td></td>
<td></td>
<td>• Peer Reviewed Orthopedic (PRORP) 2010</td>
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<tr>
<td></td>
<td></td>
<td>• Ovarian Cancer (OCRP) 2009, 2008</td>
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<td></td>
<td></td>
<td>• Prostate Cancer (PCRP) 2009, 2008</td>
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<tr>
<td></td>
<td></td>
<td>• Neurofibritosis (NFRP) 2002</td>
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<td>• Breast Cancer (BCRP) 2001, 2000</td>
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</tbody>
</table>

# Opportunities for Junior Faculty with the CDMRP - DoD

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<tr>
<th>Program</th>
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<tbody>
<tr>
<td><strong>CDMRP Career Development Awards</strong></td>
<td>Pre-application early June</td>
<td>Principal Investigator: Independent investigator at or below the level of Assistant Professor or equivalent, or above the level of Assistant Professor seeking to a research transition.</td>
</tr>
<tr>
<td></td>
<td>Invitation to submit July</td>
<td>Must not have received more than $300,000 in total direct costs for NF research as a PI of one or more federally funded, non-mentored peer reviewed grants; and Must not have received a New Investigator Award previously from any program within the CDMRP</td>
</tr>
<tr>
<td></td>
<td>Proposal deadline mid September</td>
<td>Research with emphasis in discovery must be in one or more of the CDMRP Topic Areas.</td>
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<tr>
<td></td>
<td>Application verification end of September</td>
<td>Preliminary data must be included.</td>
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<tr>
<td></td>
<td>Peer review November</td>
<td>Maximum funding is $400,000 for direct costs (plus indirect costs), maximum period of performance is 3 years.</td>
</tr>
</tbody>
</table>
|                               | Programmatic review January                    | Historical Record for CDA by the different Research Medical Programs:  
  • Neurofibratosis (NFRP) 2012 - 2006  
  • Bone Marrow Failure (BMFRP) 2010  
  • Prostate Cancer (PCRP) 2009 - 2006  
  • Peer Reviewed Cancer (PRCRP) 2009  

# Opportunities for Young Faculty in the DoE

<table>
<thead>
<tr>
<th>Program</th>
<th>Deadline</th>
<th>Program Synopsis</th>
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</thead>
<tbody>
<tr>
<td>U.S. Department of Energy Early Career Research Program, Office of Science</td>
<td>FOA by end of July September; required pre-application September 11, 2014 5:00PM EST (2-page) October 9, 2014 (notification) November 20, 2014 5:00 PM for full application</td>
<td>Applicants must be no more than <strong>ten years</strong> beyond the Ph.D. at the deadline for the application. There is NOT a U.S. citizenship requirement for the Principal Investigator or any project participants. Estimated amount of funding $150,000 per year. Award duration 5 years. Limited to three competition attempts. <a href="http://science.energy.gov/early-career/">http://science.energy.gov/early-career/</a></td>
</tr>
</tbody>
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2014 Research Topics

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**DOE**

I. Advanced Scientific Computing Research (ASCR)
(a) Applied Mathematics
(b) Computer Science

II. Biological and Environmental Research (BER)
(a) Systems Biology Research on Microbes Relevant to Biofuels Production
(b) Land-Atmosphere Interactions

III. Basic Energy Sciences (BES)
(a) Materials Chemistry
(b) Biomolecular Materials
(c) Synthesis and Processing Science
(d) Experimental Condensed Matter Physics
(e) Theoretical Condensed Matter Physics
(f) Physical Behavior of Materials
(g) Mechanical Behavior and Radiation Effects
(h) X-ray Scattering
(i) Neutron Scattering
(j) Electron and Scanning Probe Microscopies
(k) Atomic, Molecular, and Optical Sciences (AMOS)
(l) Gas Phase Chemical Physics (GPCP)
(m) Computation and Theoretical Chemistry
(n) Condensed Phase and Interfacial Molecular Science (CPIMS)
(o) Catalysis Science
(p) Separations and Analysis
(q) Heavy Element Chemistry (HEC)
(r) Geosciences Research
(s) Solar Photochemistry
(t) Photosynthetic Systems
(u) Physical Biosciences
(v) Nanoscale Science Research Centers and Electron-Beam Microcharacterization Centers

IV. Fusion Energy Sciences (FES)
(a) Magnetic Fusion Energy Science Experimental Research
(b) Magnetic Fusion Energy Science Theory and Simulation
(c) High-Energy-Density Plasma Science
(d) General Plasma Science Experiment and Theory
(e) Materials Science and Enabling Technologies for Fusion

V. High Energy Physics (HEP)
(a) Experimental Research at the Energy Frontier in High Energy Physics
(b) Experimental Research at the Intensity Frontier in High Energy Physics
(c) Experimental Research at the Cosmic Frontier in High Energy Physics
(d) Theoretical Research in High Energy Physics
(e) Accelerator Science and Technology Research & Development in High Energy Physics
(f) Detector Research and Development in High Energy Physics

VI. Nuclear Physics (NP)
(a) Medium Energy Nuclear Physics
(b) Heavy Ion Nuclear Physics
(c) Low Energy Nuclear Physics
(d) Nuclear Theory
(e) Nuclear Data and Nuclear Theory Computing
(f) Accelerator Research and Development for Current and Future Nuclear Physics Facilities
(g) Isotope Development and Production for Research and Applications

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**DARPA**

1. Optimizing Supervision for Improved Autonomy
2. Neurobiological Mechanisms of Social Media Processing
3. Next-generation Neural Sensing for Brain-Machine Interfaces
4. Mathematical and Computational Methods to Identify and Characterize Logical and Causal Relations in Information
5. Time-Dependent Integrated Computational Materials Engineering
6. Long-range Detection of Special Nuclear Materials
7. Alternate Fusion Concepts
8. New Materials and Devices for Monitoring and Modulating Local Physiology
9. Methods and Theory for Fundamental Circuit-Level Understanding of the Human Brain
10. Hierarchically Complex Materials that Respond and Adapt
11. Disruptive Materials Processing
12. Disruptive Computing Architectures
13. Appliqué Antenna Elements for Platform Integration
15. Advanced Automation and Microfluidic Technologies for Engineering Biology
17. Thin Film Transistors for High-performance RF and Power Electronics
18. Neural-inspired Computer Engineering
**Opportunities for New Investigators in the NIH**

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<tr>
<th>Program</th>
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<tbody>
<tr>
<td>NIH K series Research Career Development</td>
<td>February 12&lt;br&gt;June 12&lt;br&gt;October 12</td>
<td>The PI is considered a New Investigator if he/she has not previously competed successfully as PD/PI for a substantial NIH independent research award and who are within <strong>10 years</strong> of completing their terminal research degree.</td>
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<td>Provides 3 to 5 years of support for a mentored research training experience.</td>
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<td>The average range of an award is $100,000 - 150,000 per year for a period of up to three years.</td>
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</table>
| | | K01  Mentored Research Scientist Development Award  
| | | K05  Senior Scientist Award  
| | | K25  Mentored Quantitative Research Career Development Award  
| | | K99/R00- NIH Pathway to Independence Award (Parent K99/R00)  
| | | [https://www.nichd.nih.gov/training/extramural/Pages/career.aspx](https://www.nichd.nih.gov/training/extramural/Pages/career.aspx) |
| | | The citizenship requirements vary by K-award but usually the applicant must be a US Citizen or Permanent Resident by the time of award. |
| | | There are different degree requirements depending upon the K-award in question. Look carefully at these before applying! Make sure you read:  
## Opportunities for Junior Faculty in the DoEd Program

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<tr>
<th>Program</th>
<th>Deadline</th>
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<tr>
<td>US Department of Education Institute of Education Sciences</td>
<td>Application posted in the summer</td>
<td>Awards are $400,000 total (direct plus indirect) for four years. The award is a Cooperative Agreement (partnership between PI and IES).</td>
</tr>
<tr>
<td>Research Training Program in Special Education: Early Career Development and Mentoring</td>
<td>LOI due within two-weeks of posting of the application</td>
<td>Applicants must have completed their doctoral degree or postdoctoral training within 3 years of the application due date and hold a tenure-track position at an Institution of Higher Education (IHE).</td>
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<td></td>
<td>Application deadline mid-September</td>
<td>Focus of research on infants, toddlers, children, or youth with or at risk for disabilities</td>
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# Opportunities for Junior Faculty with NASA

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<th>Program</th>
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<tr>
<td><strong>Research Opportunities in Space and Earth Sciences (ROSES)</strong></td>
<td>Solicitation released mid February (2013)</td>
<td>Tenure or non-tenure track University position; U.S. citizen or have lawful status of permanent residency. He/she must be a recent Ph.D. recipient, defined as having graduated on or after January 1 of the year that is no more than five years before the issuance date of the ROSES NRA. However, if the Ph.D. was completed in February 2013, it is acceptable. Awards range between $80-$120K per year for a period of up to three years. Competed in alternate years. <a href="http://science.nasa.gov/researchers/sara/grant-solicitations/">Read More</a></td>
</tr>
<tr>
<td><strong>New Investigator Program (NIP) in Earth Science</strong></td>
<td>Proposals due end of March</td>
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<tr>
<td><strong>NASA Office of the Chief Technologist (OCT)</strong></td>
<td>Solicitation released early November (2013)</td>
<td>Tenure or non-tenure track University position; U.S. citizen or have lawful status of permanent residency. He/she must be a recent Ph.D. recipient, defined as having graduated on or after January 1 of the year that is no more than seven years before the issuance date of the STRO-ECF NRA. Awards range between $100,000-$200K per year for a period of up to three years. Competed in alternate years. <a href="http://nspires.nasaprs.com/external/solicitations/summary.do?method=init&amp;solId=%7B652EA8D6-AB98-5B26-22DD-DB02B6EB3659%7D&amp;path=open">Read More</a></td>
</tr>
<tr>
<td><strong>Space Technology Research Opportunities for Early Career Faculty (STRO-ECF) or ECF Space Tech Research Grants</strong></td>
<td>NOI due in mid February (2014)</td>
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<td>Proposals due mid March</td>
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# Opportunities for Junior Faculty in the NSF

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<tr>
<th>Program</th>
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<th>Program Synopsis</th>
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</table>
| Ocean Sciences Research Initiation Grants (OCE-RIG) | January 11, 2016          | The applicant:  
- Must be a US citizen, national, or permanent resident  
- Have accepted or are currently in a tenure track Assistant Professor level faculty position or equivalent research appointment, and have been in the position no more than **three** full-time-equivalent years;  
- **Have not received salary support as a Principal Investigator or co-Principal Investigator** on a new federal research grant since starting the tenure track position. Pending proposals are not disqualifying; only grants that have been officially awarded.  
- Present a project plan that falls within the purview of NSF's Division of Ocean Sciences oceanographic research priorities  
The maximum award is $100,000 total for a duration of 12-24 months. OCE-RIG funds cannot be used for PI or other senior personnel salary or for renovations of laboratory or office space.  
~ 6 awards are made each year  
| Faculty Early Career Development (CAREER) Program | Due date in mid-July      | 5 years of funding - minimum $500,000 in the Biology Directorate or Division of Polar Programs and $400,000 for all others  
Must be tenure-track, untenured faculty holding Assistant Professor position  
3 chances to submit  
Agencies Portals

FastLane is an interactive real-time system used to conduct NSF business over the Internet. FastLane is for official NSF use only. More
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Proposals, Awards and Status | Proposal Review | Panelist Functions | Research Administration | Financial Functions
Honorary Awards | Graduate Research Fellowship Program | Postdoctoral Fellowships and Other Programs

Quick Link
- Special Exceptions to the NSF Deadline Date Policy Due to Natural or Anthropogenic Events
- Registration Information
- Award Search and Funding Trends
- FastLane FAQs

Advisories

01/28/15 - FastLane will be unavailable from 12:01AM ET to 6:01AM ET on Sunday, February 1 for scheduled maintenance. We apologize for any inconvenience.

12/22/14 - *For NSF 15-530 Royce Program*: You may begin proposals any time! The Project Data Form reflects the 4 new tracks. Select Track 1, Track 2, Track 3 or Track 4 as indicated in the solicitation.

06/10/14 - *Password? NSF ID? Contact your SPO!* For additional guidance about 'Having Trouble With Your FastLane Login'....
2014 – ODU awardees

- “Towards the Next Generation of Data-Driven Computational Brain Analytics”
  Shuiwang Ji, Computer Sciences.

- “CAREER: Nutrients and Energy-rich Macromolecules Recovery from Microalgae using Subcritical Water”
  Sandeep Kumar, Civil and Environmental Engineering.
NSF Career Award

- 500 + awarded per year.
- 5 years of funding – minimum $500,000 in the Biology Directorate or Division of Polar Programs and $400,000 for all others
- Must be tenure-track faculty holding an Assistant Professor position
- 3 chances to submit – TIMING important
- Due date in mid-July
  - In 2014 - July 21, 22, and 23 – depending on directorate
  - Anticipated date – 4th week in July
NSF CAREER Program Goals

- Promote career development of outstanding new teacher-scholars in the context of the mission of their institution
- Build lifetime foundation for integrated contributions to research and education
- Provide incentives to Universities to value integration of research and education
- Increase participation of those traditionally underrepresented in science and engineering
Selecting a Research Topic

- What research topic will you choose?
  - Should be innovative and exciting – promise for impact in your field
  - Continuation of dissertation research? Relatively newer, more innovative offshoot? Research on different but related topic?

- Can you develop a convincing 5-year research plan?

- Do you have enough preliminary results and/or publications to convince reviewers you have the expertise to be successful?

- Once you have narrowed down to one or more NSF programs, contact the Program Officer.
Planning the Education Component

- Successful educational plans go beyond what would be expected as a normal part of being a faculty member.

- **Not so ambitious** to be a burden on PI who must earn tenure.

- Should not take up half of your 15-page limit; approximately 3 pages at a research-intensive institution.

- Should include several activities aimed at different groups: enhancing undergrad and grad education, often include outreach to K-12 or the larger community.

- Should address diversity.

- Understand NSF’s motivation – integration of research + education.

- Understand your motivation – your passionate interests.

- Read the educational literature, assessment, dissemination.

- Find collaborators, leverage existing activities.
Beginning to Write

- **A CAREER grant invests in the PI**
  - Convince reviewers to invest in you, not just your project
  - Explain long-term career goals (briefly)
  - Importance to NSF of your research and education goals
  - Your potential to become a future leader in your field
  - How this grant will help you become a leader in your field

- **NSF uses the CAREER program to change academic culture**
  - Promoting integration of research and education (not research vs. education)
  - Want to recruit next generation of scientists and engineers to promote a scientifically literate society

- **Show reviewers how the project fits with your institution’s mission**
  - Clear institutional support for the activities you propose
  - Describe the mission and priorities of your institution
    - ODU’s mission & student population will be different from a PUI or large land grant institution
  - 2-page letter from your Department Chair critical
Structuring your Project Description

I. Introduction and Overview (suggestion: 1-2 pages)
   I. Goals and Significance of Career Plan (both research and education)
   II. Overview of approach and why it’s innovative

II. Research Plan (9-10 pages)
   I. Background & Significance (3 pages or less)
   II. Prior work and Preliminary Results
   III. Experimental/Methodological Plan
   IV. Schedule with milestones

III. Education Plan (3-4 pages)
   I. Education objectives and Expected outcomes
   II. Background (cite educational literature)
   III. Prior work and preliminary results
   IV. Education and Outreach Activities
   V. Assessment
   VI. How research and education plans are integrated
   VII. Schedule and milestones

IV. Broader Impacts Plan (required)

V. Results of Prior NSF Support (required if applicable)
Writing the Education Component

**Education Plan** (typically 3-4 pages for research intensive institution; may be more for PUIs)

- **Educational Goals, Objectives, and Expected Outcomes**
- **Background (cite educational literature)**
- **Prior Work and Preliminary Results**
  - Describe any activities related to education plan that you have already been engaged in; include outcomes if you have them
- **Education and Outreach Activities**
  - Describe activities in detail; analogous to your experimental plan in the research section
- **Assessment**
  - Connect your goals and objectives to your assessment plan
- **Dissemination**
  - Be specific and try to do more than publishing in educational journals or putting up a website; e.g., create open education resource website
Assessment of Departmental Letter (2 pages) part of the review criteria for CAREER
- Description of how PI career goals mesh with ODU and department
- Commitment to professional development of PI with mentoring and resources to succeed in integration of research and education
- Verification that PI is eligible for CAREER program

Letters of Collaboration
- Not mere letters of support or letters of reference

Facilities, Equipment and Other Resources

Data Management Plan

Biosketch
- Make sure your 2 page bio emphasizes the skills needed

Current and Pending Support
Budget & Justification

- How much to request?
  - NSF specifies minimum ($400k or $500k)
  - Depends on the directorate…
  - Engineering close to minimum as it receives most applications
  - MPS have given >$600k awards
  - Need to find out via colleagues, funded proposals, PO

- No Co-PIs or other senior staff allowed

- Consultants and sub-awards are allowed

- No cost sharing allowed

- Not a lot of money after IDC (53%), your summer salary for a month, support for graduate student (post-doc, undergrad?), travel, equipment, materials & supplies, participant support costs – don’t forget education component costs and evaluation of outcomes of the education program(s)
# Leveraging Existing Activities at ODU

<table>
<thead>
<tr>
<th>Program Title</th>
<th>Description</th>
<th>Contact(s)</th>
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</table>
| **K-12 Programs**                                       | **Project Lead The Way (PLTW)** PLTW builds strategic partnerships among middle schools, high schools, colleges and universities, and business and industry. To date, the organization includes 1300 schools, 24 universities, covering 49 States and Washington DC. PLTW offers a four-year sequence of courses which, when combined with college preparatory mathematics and science courses in high school, introduces students to the scope, rigor and discipline of engineering and engineering technology prior to entering college. The aspiration is to attract more high school students to engineering, and better prepare them for college engineering programs. A critical component of the PLTW program is its comprehensive teacher training model where teachers are trained to utilize cutting edge technology and software. | [http://www.pltw.org](http://www.pltw.org)  
Ms. Mary Addison  
Maddison@odu.edu  
(757) 683-3789  
Mr. Randy Haddock  
rhaddock@odu.edu  
(757) 683-3775 |
| **Cooperating Hampton Roads Organization for Minorities in Engineering (CHROME)** | CHROME is a partnership of business, industry, government agencies, institutions of higher learning, public school systems, and civic and professional organizations in the Hampton Roads region. CHROME’s vision is to be recognized as the leading organization promoting student access to, and achievement in, science, mathematics, engineering, and related technical fields to meet future global requirements. The mission of CHROME is to increase opportunities for underrepresented minority and female students to enter math, science, engineering, and related technical fields. CHROME serves as a planning, coordinating, and advocacy organization designed to complement and enhance the educational programs of public K-12 school systems. | [http://www.chrome.org/index.php?index=home](http://www.chrome.org/index.php?index=home)  
Dr. Greg Selby  
gselby@odu.edu  
(757) 683-3735 |
| **Undergraduate Programs**                              | **Engineering Fundamentals Division (EFD)** EFD was designed to provide comprehensive support as students transition into the college to take courses in their selected major. EFD’s directive is to prepare students for success in their engineering and technology education by providing not only key experiences through its fundamentals course series, but also by individualized counseling, advising, mentoring and tutoring. All engineering students are given one-on-one guidance by EFD, especially in their first years. | Dr. Linda Vahala  
lvahala@odu.edu  
Ms. Bonita Anthony  
banthony@odu.edu  
Mr. Randy Haddock (ENG110)  
rhaddock@odu.edu |
<table>
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<tr>
<th><strong>Honors College</strong></th>
<th>Our general education courses promote active engagement and collaboration between students and faculty. Our Essential equipment/supply grants, the Student Honors Apprenticeship in Research Program, civic learning projects, and conference travel grants support honors students in their development as researchers and community members. The Honors College also assists all undergraduates in the development of successful applications for prestigious scholarships, including the Rhodes, Truman, Marshall, Mitchell, and Jack Kent Cooke competitions.</th>
<th><a href="http://www.odu.edu/ao/honors/See">http://www.odu.edu/ao/honors/See</a> Undergraduate Research Program The Honors College Student Success Center, Rm 2000A (757) 683-4865 (office) (757) 683-4970 (fax) <a href="mailto:honorscollege@odu.edu">honorscollege@odu.edu</a> Dean: Dr. David Metzger; <a href="mailto:dmetzger@odu.edu">dmetzger@odu.edu</a> Dr. Brian Kurisky <a href="mailto:bkurisky@odu.edu">bkurisky@odu.edu</a></th>
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<tr>
<td><strong>Early Advantage Program to Retain Female Engineering Majors</strong></td>
<td>The Engineering Early Advantage Program for Women was developed as a recruiting and retention program for women engineering students.</td>
<td><a href="http://www.odu.edu/ao/news/index.php?todo=details&amp;id=23236">http://www.odu.edu/ao/news/index.php?todo=details&amp;id=23236</a> Beverly Forbes <a href="mailto:BForbes@odu.edu">BForbes@odu.edu</a></td>
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<td><strong>Council of Student Organizations (CESO)</strong></td>
<td>BCET also recognizes the importance of peer-to-peer support systems. CESO is an umbrella group composed of the Society for Women Engineers (SWE), Society of Hispanic Professional Engineers (SHPE) and National Society of Black Engineers (NSBE), and fifteen other organizations. It has been shown that students who are active in these organizations have the needed support system to get through both academic and social challenges and rigors in university settings.</td>
<td><a href="http://www.societyofwomenengineers.swe.org/">http://www.societyofwomenengineers.swe.org/</a> <a href="http://www.nsbe.org/">http://www.nsbe.org/</a> <a href="http://www.shpe.org/">http://www.shpe.org/</a> Ms. Bonita Anthony <a href="mailto:banthony@odu.edu">banthony@odu.edu</a></td>
</tr>
<tr>
<td><strong>Career Advantage Program</strong></td>
<td>CAP is the student’s link to career assistance, resources, and experience. CAP was established to give students the opportunity to gain work experience related to a student’s major through internships, cooperative education or practical experience outside the classroom. The program includes new on-line features such as cyber coaching and instant career messaging as well as the Tele-presence two way communications system connecting CMC to all the distance learning sites as well as employers who wish to connect virtually to the university.</td>
<td><a href="http://www.odu.edu/content/dam/odu/offices/cmc/docs/odu_cmc_cap_guide.pdf">http://www.odu.edu/content/dam/odu/offices/cmc/docs/odu_cmc_cap_guide.pdf</a> Beverly Forbes <a href="mailto:BForbes@odu.edu">BForbes@odu.edu</a></td>
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# Leveraging Existing Activities at ODU

## Mentor Programs
The Faculty Involvement Program at BCET provides faculty and students the opportunity to develop meaningful relationships outside the classroom. This program includes activities such as the Lunch on Us and A Night At the Arts. The Career Management Center brings together students, alumni, and employers. Through formal or informal venues, the CMC provides the student with a chance to connect with alumni and employers in industry. Volunteer alumni and employers support workshops, internship/Co-op, alumni career events, panel events, and discussion groups. The CMC also provides the Community Service Internship program providing off campus employment with community service organizations for students with Federal Work Study Awards.

**Career Management Center at ODU**
http://www.odu.edu/cmc

**Beverly Forbes**
BForbes@odu.edu

## Research Program for Undergraduates
BCET awards research experience grants to its undergraduate students each academic year. The program supports active research participation by undergraduate students. Projects involve students in meaningful ways in ongoing research programs at the different departments.

**BCET Dean’s Office**
Dr. Shrishak Dhali
Sdhali@odu.edu
(757) 683-3769

## Undergraduate Research Symposium and Undergraduate Research Journal
The Undergraduate Research Symposium provides students at ODU with the opportunity to present the results of their research projects in a public forum. ODU students and faculty, area high school students, their parents, students from area colleges, and members of the community are all invited to attend. Students who presented at the Undergraduate Research Symposium are invited to submit research reports or articles to ODU’s online Undergraduate Research Journal.

**Administer at the Honor College**
2000 Student Success Center
757-683-4865
Contact person TBD

## Student Capstone Conference
The conference features students from ODU and universities and schools across the country. Students present their research to an audience of fellow students, faculty, and judges. For the students, these presentations serve as a culmination of their research and academic careers. The Conference affords them the opportunity to present their findings to members of the research community in academia, industry, and government.

**http://www.vmasc.odu.edu/capstone2015.html**
Dr. Yuzhong Shen
Yshen@odu.edu
(757) 683-6366

## Graduate Programs
BCET is part of CGEP, developed by the leading universities in the Commonwealth of Virginia. It is a distance learning program shared by a consortium of universities including George Mason University (GMU); Old Dominion University (ODU); University of Virginia (UVA); Virginia Commonwealth University (VCU); and Virginia Tech (VT).

**http://cgep.virginia.gov/**
Dr. Linda Vahala
Lvahala@odu.edu

## Workforce Development and Continuing Education Programs
Business Gateway provides quality, performance-based programs to support the professional development requirements of the engineering and technical professions. Business Gateway serves companies and businesses in the Hampton Roads area and beyond.

http://www.odubusinessgateway.com/
Ms. Clair Dorsey
Executive Director College of Continuing Education and Professional Development
cdorsey@odu.edu
2015 CAREER deadlines

Deadline date in mid-July

- In 2014 — depending on directorate
  - July 21: BIO, CISE, EHR
  - July 22: ENG
  - July 23: GEO, MPS, SBE

- Anticipated date – 4th week in July 2015